A RAND NOTE

FINDINGS OF A SEMINAR ON THE COST OF BILINGUAL EDUCATION

Polly Carpenter-Huffman

July 1980

N-1504-ED

Prepared For

The U.S. Department of Education

Rand
SANTA MONICA, CA. 90406

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PREFACE

This Note describes a seminar conducted at The Rand Corporation in assistance to the Coordinating Committee on Bilingual Research of the U.S. Department of Education (ED).[1] The Committee included persons from ED,[2] the Office of Bilingual Education and Minority Language Affairs (OBEMLA),[3] and other units in the Education Division. The objectives of the assistance were (1) to identify needs at the federal level for information on the cost of bilingual education, (2) to determine what information is available, and (3) to design a research plan for obtaining information that is needed but lacking. The seminar was supported within the Rand Education Policy Development Center, Contract No. 300-79-0522, with the Assistant Secretary for Education.

The Note is based on the contributions of participants at the seminar and critiques received during preparation of the text. Participants were Herbert Alston, José Cardenas, Ruben Espinosa, Joseph Garcia, Josué Gonzalez, Aaron Gurwitz, Sue Haggart, Ron Hall, Paul Hill, James Kakalik, Maria del Refugio Robledo, and the author. Dorothy Waggoner and Gerald Kahn of the National Center for Educational Statistics and Gil Garcia of OBEMLA provided useful critiques. The author especially thanks Paul Hill and James Kakalik for their many useful comments on the early and final drafts. The author is, of course, responsible for any errors or misstatements that appear herein.

[1] Formerly part of the U.S. Department of Health, Education, and Welfare.

[2] Formerly in the Office of the Assistant Secretary for Education, Policy Development (ASE).

[3] Formerly the Office of Bilingual Education.

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Chapter 1

DESCRIPTION OF THE SEMINAR

In February, 1980, the Office of the Assistant Secretary for Education, Policy Development (ASE), and the Office of Bilingual Education (OBE) sponsored a seminar at The Rand Corporation on the cost of bilingual education. The purpose of the seminar was to bring together those knowledgable about bilingual education or the cost of education, or both, to review what is known in the area, and to develop an agenda for further research.

The seminar addressed the following questions:

- What information about the cost of bilingual education is perceived to be needed at the federal level?
- What is known about the features of bilingual education services?
- What methods exist for estimating the cost of such services?
- What is known about the cost of bilingual education?
- How can cost information that is needed and lacking best be obtained?

The seminar was conducted within the context of the program of research designed by the Department of Health, Education, and Welfare (HEW) in response to a Congressional mandate for a national research program in bilingual education.[1] Hereafter, this program is termed the "Part-C research program" because it appears in Part C of Title VII of the Elementary and Secondary Education Act. Since the seminar occurred, the Education Department has been created; within it, the OBE has become the nucleus of the new Office of Bilingual Education and Minority Language Affairs (OBEMLA).

[1] PL 95-856, Section 742 (b).

The primary research on the cost of bilingual education included in the Part-C program was to be the Development of a Cost Model for Delivery of Bilingual Education Services, under the leadership of the National Center for Educational Statistics (NCES). The cost model research was also intended to support two other studies; one is a study of the Instructional Features of Bilingual Education Programs, under the leadership of the National Institute of Education (NIE), and the other, a Feasibility Study of Conversion of Title VII to a formula-based program, under the leadership of NCES.[1]

The seminar was hosted by the Rand Education Policy Development Center, directed by Dr. Paul Hill. Dr. Josué Gonzalez, now Director of OBELMA, represented the OBE, and Dr. Ron Hall, now in OBELMA, represented the ASE. The expertise of the other participants is demonstrated by their publications; the most relevant of these are included in the list of references to this Note. The participants and their positions at the time of the seminar are listed in Appendix A, along with the names of several observers; the seminar agenda is given in Appendix B.

This Note primarily presents the author's interpretations of the opinions and findings of the seminar participants with regard to the major questions to be addressed by the proposed research. The substance of the seminar findings has been selected and organized to facilitate this interpretation and has been amplified as needed by findings from other research. At times, particular speakers are cited because their position or experience validate the statement or lend weight to the opinion expressed.

[1] U.S. Office of Education, 1979, pp. 57, 58, 60-65, 79-81.

The Note contains five chapters. To provide the basis for discussion of the questions to be addressed by the research, Chapter 2 describes a framework for analyzing the cost of bilingual education and discusses the uses of cost information for bilingual education policy formulation and program management. Chapter 3 describes the services that may be provided in bilingual education programs. Chapter 4 summarizes discussions at the seminar of previous studies to establish the cost of education services; these reports focused on bilingual education but also included studies of the cost of compensatory education and education for the handicapped. The final chapter sets forth the agenda for research to derive cost information needed at the federal level. National Center for Education Statistics, Draft Report, 1979.

Chapter 2

COST INFORMATION FOR POLICY DECISIONS

To provide a background for the remainder of the Note, this chapter summarizes some concepts of cost analysis and presents some useful definitions. In addition, uses at the federal level for cost information are described and related to the kinds of cost information required. A comprehensive overview of cost analysis would be inappropriate here, however, and such is not attempted. Ms. Haggart's work provides a sound introduction to the field for those who wish to pursue it further.[1]

Later in this Note, previous studies of the cost of bilingual education are discussed. The present chapter provides a background for assessing the adequacy of this information for meeting policy formulation and management needs at the federal level. This chapter also supplies the rationale for the research agenda to establish cost information to fill needs that are currently unmet.

ANALYZING THE COST OF EDUCATIONAL SERVICES

Describing Educational Services

The first step in analyzing the cost of bilingual education services is to determine what they comprise, that is, what are the objectives, how many students of what types are to be served, what are the characteristics of services supplied to students with different needs, and for how many years provision of the services should be considered. It is important that the description be as complete as possible. For example, if the service has not been supplied to the students in the past, it may be necessary to

[1] Haggart, 1978.

make special plans for it and to train teachers to provide it (or hire those who are already trained). In addition, if the service requires additional management activities, such as liaison with persons disbursing federal funds, these activities should be included in the description.

All important features of the service should be included, regardless of the possible sources of funds to obtain them, that is, funding considerations should not affect the results of the cost analysis. For example, even though Title VII funds are not used for salaries for bilingual education teachers, these salaries should be included in the cost analysis. Because of the importance for cost analysis of considering all features of bilingual education services, the seminar was not limited to considerations of only those characteristics that would be funded under Title VII.

Because of the primacy of a complete description of educational services in the process of determining cost information, the following chapter discusses at some length the various ways in which the phrase bilingual education may be translated into educational services.

It is not useful to go into great detail in describing characteristics of an educational service whose effects on cost will be small compared with the effects of other characteristics. For example, the Instructional Features study will primarily be concerned with details of classroom instruction that have important consequences for children; many of these will incur no added cost once the program is in place. On the other hand, many program features that generate higher costs (such as transportation of students in a sparsely populated district) may be essentially unrelated to details of classroom operation.

Confusion may arise about whether to include in the description such things as teachers and classrooms that are regularly provided to the students, if they will be used in supplying the service. It is important to include such items in the description of the service for several reasons. First, the inclusion ensures that the description is complete; second, it ensures that explicit consideration has been given to possible needs for modifying the regularly provided resource (e.g., additional teacher training); third, it ensures that comparisons between the special service being considered and other services, such as those regularly provided, are made on comparable grounds. The inclusion of the cost of regularly provided resources in the total cost does not mean that there is an added cost for providing that resource. Computation of added cost is discussed on page 12.

Services should be distinguished by the level in the school organization at which they apply, that is, whether they are delivered directly to the individual student or at some more encompassing level. For conciseness, the levels used here are: student, school, LEA,[1] state, and federal. In the ensuing discussion, the phrase local level refers to the collection of student, school, and LEA levels. Strictly speaking, any service delivered above the student level, e.g., school administration and management, is a support service.

Much of the discussion to follow applies primarily to the local level because this is the level at which the bulk of education services are delivered. In addition, the second section of this chapter will show that

[1] This includes special "districts" that encompass large geographic regions.

cost information applicable at this level can have greater utility than cost information that reflects only aggregated needs for resources.

Cost Structures

Although the description of the educational service is useful in itself, its main use in cost analysis is to supply the basis for ensuring the completeness of the description of the resources required to deliver the service. By resources is meant the teachers, classrooms, materials, and other things that generate cost and that, taken together, provide the service.

The description of the resources is presented in a cost structure, that is, a set of categories of uses for the resources.[1] For most programs, uses should be grouped broadly under categories such as "start-up" and "operation;" then it is useful to break them down more finely into such activities as pre-service training and instruction in English as a Second Language (ESL).

In the cost structure, the resources should be described in terms of the kind of resource and the number or measure of the resource. The kinds of resource should match existing school budget categories to the extent possible. For example, instead of lumping all personnel together, they should be broken out by primary teacher, teacher aide, supplementary teacher, and so on. This will permit direct comparisons with most existing school budgets and also provide component costs.

[1] See Haggart, 1978, p. 39, for an example of a cost structure.

The cost of services should be derived from this description of resources. Two kinds of cost may be used--standard cost and area-specific cost. Standard cost is simply a representative cost of a given resource for the universe of concern, that is the entire set of students (or other service recipients) that will receive the service. At the federal level, the universe of concern usually includes the fifty states and the territories. A standard cost may be a mean or median salary, for example; for decisions about bilingual education, the mean cost should probably be weighted by the incidence of bilingual students in the universe of concern. The area-specific cost is the cost of a given resource for a given locality, which may be a school, LEA, state, or region.

Standard cost is useful for comparing hypothetical programs or for making decisions about resource allocations at the national level, e.g., how much money to allocate among teacher training programs, LEA support, or technical assistance centers.[1] Area-specific cost is useful for selecting programs and planning their implementation in a specific area or location, and for determining the dollar value of services already being provided.

[1] These are the Bilingual Education Service Centers and Evaluation, Dissemination, and Assessment Centers. There are also SEA technical assistance units.

The Cost of Important Resources

Because teacher salaries usually account for the bulk of the cost of educational services, one of the most important questions involves the cost of bilingual education teachers. To some extent, this cost depends on teacher availability. Based on self-reports in a 1976-77 survey of a nationally representative sample of about 10,000 public school teachers, the NCES estimated that 34,000, or 1.6 percent of all teachers, were prepared and able to teach in a bilingual education program.[1]

> Despite provisions in the existing law to improve teacher training, a shortage of bilingual education teachers persists. Nationally, there is an estimated need for 129,000 bilingual education teachers, only a small portion of which has been filled. Three-fourths of States surveyed by OE report considerable teacher shortages.[2]

The shortage of teachers may be alleviated in a variety of ways. For example, persons teaching in regularly provided programs as monolingual teachers, teachers who have Hispanic, Asian, or other backgrounds, and persons classified as teachers of foreign languages such as Spanish might be retrained as bilingual education teachers. Such training might prepare these persons to use the non-English language to teach academic subjects such as language arts in the non-English language, science, and mathematics. In addition, persons proficient in required languages but not certified to teach can serve as bilingual aides to assist until they have received sufficient training to qualify as classroom teachers, themselves, or until qualified teachers are available. Finally, special efforts may be made to recruit qualified bilingual education teachers. Each of these

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[1] Waggoner, 1979, p. 29.

[2] Committee on Education and Labor, House of Representatives, May 11, 1978, p. 88.

solutions may require additional expenditures that should be included in estimating the cost of bilingual education.

Another important aspect of a bilingual program from a cost point of view is the ratio of adults to children in the classroom. Obviously the teacher (as well as the aide) is an essential ingredient in this equation, and variations in the sizes of bilingual education classes will strongly affect the numbers of teachers needed and, hence, the cost of the program. The number of teachers relative to the number of aides will also be important, as will different staffing patterns at different grade levels.

Resource costs are very different in different parts of the country. In 1977-78, although the average annual salary of instructional staff in public elementary and secondary schools was $14,836, it ranged from $10,404 in Arkansas to $18,144 in Michigan. The highest figure was the median salary in Alaska, $23,262.[1] Careful consideration of these differences is essential.

In sum, the cost of teachers for bilingual education may or may not be the same as the cost of teachers for regularly provided education, depending on availability of qualified persons, methods used to obtain qualified persons, class sizes, and so on. This is probably the most important question to be investigated by the cost analysis.

Other variables to be considered include development and provision of classroom materials, equipment, testing, and library materials, and administrative, supervisory, consultant, and liaison services at the school, district, and state levels. Each of these resource categories must be

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[1] Grant and Lund, 1979. The average salary in Alaska was not given. Salaries of supervisors, principals, classroom teachers, and other instructional staff are included.

included, and some, such as preparation of materials for American Indian languages, may require appreciable investments of resources. In general, however, none is as important from a cost point of view as are the numbers and types of students to be served and the teachers and aides to serve them.

Cost Models

The resources displayed in a cost structure often are related to one another. For example, given a particular description of a service, one can often determine the number of teachers, classrooms, and sets of materials from the number of students to be served. When the relationships among such resources are expressed in mathematical terms (not necessarily in a computer), the cost structure becomes a cost model.

Cost models allow one to examine the effects on resource needs and cost of changes in the service brought about by such things as changes in the number of students to be served.

Cost models representing aggregate expenditures may be quite simple, as in Hartman's paper.[1] Models incorporating the details of local programs are more difficult to construct than cost structures and require a more thorough knowledge of how educational services really work. Good cost structures are prerequisite to cost models, however; the following discussion centers on cost structures, rather than cost models.

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[1] Hartman, 1979.

Using Cost Information from a Cost Structure

A cost structure helps one understand the relationships among definitions of educational services, resources, and cost. A comprehensive and detailed cost structure can have many uses. The way the cost structure is used will depend on the decision to be made; the relevant cost is the cost that is affected by the decision. If the service requires certain resources, the cost of those resources should be considered. However, if the same resources are there for other purposes and would still be there if the service were not offered, even though the service may use them, those resources and their cost are irrelevant to the decision.

Note that the decision about which elements of a cost structure should be used is different from the decision about what should go into the cost structure in the first place. This distinction emphasizes the need for cost structures that can be used in many ways; cost structures tailored to specific uses often cannot be applied to others.

To compute the "add-on cost" of a special service, that is, the extent to which the cost of the service exceeds the cost of regularly provided education services, the cost of each service should be computed in a similar way. For example, the same categories of resources should be included in both cost structures. The add-on cost is then the difference between the total cost of the special service and the total cost of regularly provided education service.

Dollar costs may become obsolete because of inflation and other changes in dollar values of resources. Therefore, for some purposes it may be useful to convert bilingual education costs derived from a cost structure into indices of cost relative to the cost of regularly provided education. In general, comparisons of cost per student, or other indices,

should be derived only from costs that have been computed in the same way. Ideally, indices should be used only when they are derived from a listing of resources, or cost structure, rather than when they are based on expenditures per student which may have little to do with resources actually delivered to students.

USES OF COST INFORMATION AT THE FEDERAL LEVEL

Information on the cost of bilingual programs is needed at the federal level in a variety of applications; the most important of these are listed below:

- o Operating Title VII
- o Assisting at the local and state levels
- o Responding to Congress
- o Coordinating with other programs

This section shows how the cost information discussed above can help meet these specific needs. The objective is to demonstrate that certain kinds of information can be useful in a wide variety of applications.[1]

On the other hand, to meet all of the federal needs additional information is required. This additional information--who now pays for how much of a given service--will help decide how federal funds should be allocated. The "who" and "how much" of funding identify precedents within which the decision maker must work. For example, if the state usually supports teacher training programs in institutions of higher education, it may be

[1] Cost information is also useful at the state and local levels. Dr. Alston described some of the uses for such information at the local level, but none of the seminar attendees represented state agencies. Therefore, the ensuing discussion does not describe uses at the state and local levels.

deemed inappropriate to support new teacher training programs entirely with federal funds. Or if one state with a large population of bilingual students has allocated funds for bilingual education for these students, other states in similar financial and demographic situations might reasonably be expected to do so.

Figure 1 displays the kinds of resource and cost information discussed earlier. The figure has two parts. The upper part shows information that relates to the cost of existing services; the lower part, the cost of proposed services. Along the left side of each part are shown examples of fundamental descriptions of resources, whereas the various ways in which these resources may be described in terms of cost are shown across the top of the upper and lower parts of the figure.

Operating Title VII

The OBEMLA would like to improve the ability of the staff to judge the reasonableness of budgets included in grant applications. Since only a third of the applications are funded, on average, it is desirable to choose for funding those that, in addition to meeting other criteria, are more efficient and effective. Cost information could help in deciding which categories of resources should receive federal funding and at what funding levels.

The balance of area-specific costs of resource categories for the proposed program at the student, school, and LEA levels would be extremely helpful in informing this kind of decision. (Unfortunately, only total costs at the local level may be provided.) It would also be useful to know what are the area-specific costs of any current program (perhaps state-funded) that may be in operation in the LEA; a breakout of such costs by level and resource category would show whether or not the federal funds

CURRENT SERVICES

Level of Service	Illustrative Function	Illustrative Resource	Standard Cost	Area-Specific Cost	Funding Sources & Percentages
Student	Instruction in ESL for Non-English Speaking	Teacher time Aide time	X	X	X
School	Library Enhancement	Library books	X	X	X
LEA	Staff Development	Faculty time	X	X	X
State	Program Management	Managerial Personnel	X	X	X
Federal	Technical Assistance Center	Personnel	X	X	X

PROPOSED SERVICES

Level of Service	Illustrative Function	Illustrative Resource	Standard Cost	Area-Specific Cost
Student	Instruction in Vietnamese for Non-English Speaking	Teacher time Aide time	X	X
School	Staff assistance	Principal time	X	X
LEA	Community Education	Faculty time	X	X
State	Teacher-Training Programs	Faculty time	X	X
Federal	LEA Assistance	Personnel	X	X

Figure 1--Resource and Cost Information on Bilingual Education Services.

being sought would be used to fill critical gaps. Comparison of standard cost and area-specific cost would also help to assess the reasonableness of the cost of the proposed program. Finally, if a bilingual program already exists in the LEA, the source of funds for that program would help the OBE staff judge whether the addition of federal, as opposed to state or local, funds is appropriate.

Unfortunately, again, funding will probably not be broken out by level. A possible solution to this problem is to require applications for funding to contain the cost breakdowns that will be useful for informing funding decisions.

The OBEMLA also want their staff to be better able to assess the ways a grantee has spent money. Particular costs of current programs, by level and resource category, would be useful for this and might trigger review of programs in which expenditures do not seem to be reasonably balanced among categories.

To assist in such activities, ED is building a data system on bilingual education programs. Clearly, descriptions of the resources used in such programs and the standard and area-specific cost of those resources, by level, should be integral to such a data system. Information on funding sources and percentages would also be an essential part of such a data base.

Federal funds for bilingual education are allocated to activities at several levels of government. Functions at the federal level are exemplified by the Office of the Director of OBEMLA, the National Clearinghouse for Bilingual Education, the National Advisory Council on Bilingual Education, and the program of federally supported fellowships for study in the field of training teachers for bilingual education. OBEMLA needs to decide

how funds should be allocated among these programs and within OBEMLA.

The cost information that would be helpful in making these decisions are the area-specific costs of current services at the state and local levels, by level (i.e., student, school, and LEA), summed across all programs, nationwide, the area-specific costs for each current program at the federal level, and the funding by source and percentage for these programs totaled nationwide.

Assistance at the Local and State Levels

The Part-C research program includes efforts to define exemplary local programs; eventually the OBE may use these models in providing technical assistance through the technical assistance centers. An important characteristic of an exemplary program is the efficiency with which it uses resources. Standard costs at the student level should be used to compare the efficiency of different proposed designs, and models of classroom instruction should be expanded to include the costs of resources required at the school and LEA levels to support the classroom activity.

Title VII requires that federal funds be used to help LEAs build their own capacity for delivering bilingual education so that federal support will eventually not be needed. The question is, how should an LEA go about this? The NTS Research Corporation is examining what "capacity building" implies at the local level--what are the current practices, and whether there are school districts that exemplify best practice. This examination should also establish the cost of different approaches to capacity-building. Probably standard costs of current programs, by level, will be the most useful for identifying efficient approaches.

Above the local level, State Departments of Education and institutions of higher education need to build the skills required for continued program support. It would be useful to know how much is now being spent in these areas, how much the improvements would cost, perhaps in standard prices, and what current arrangements for funding such services are. This information would help OBEMLA decide how much support for these improvements should come from federal funds.

Responding to Congress

The initial hearings on the reauthorization of Title VII may begin as early as the spring of 1982. Since the bulk of federal funds are provided to LEAs to support local programs, Congressional concern will probably focus on local needs. Congress may want answers to questions such as the following:

- How many children have been reached by past allocations of funds? To answer this question, one must know how much of past funding has reached the student level.
- How much money is needed at the local level for bilingual education? That is, what should per-pupil expenditures be or, conversely, how many children will be served by various levels of appropriations? To answer this question, the total of standard costs of proposed programs, nationwide and by level, are needed, as well as the total of current expenditures, nationwide and by level. The difference would then be the added funding needed.
- How much has been used to support programs at the national level, and what has been obtained for these funds? How much should be included in the appropriation for these programs and why?

In the reauthorization act of 1978, Congress required special consideration for English-speaking students in Puerto Rico,[1] American Indian

[1] Section 721. (d).

students, and Alaskan Native students.[1] Probably area-specific costs of the proposed programs at the local level, by level, would be the best for determining how much these requirements will cost, but standard costs might be sufficient.

In addition, Congress asked ASE to determine whether funding for bilingual education programs should be based on some kind of a formula. To respond to this request, ED will need the results of a study of the feasibility of conversion to a formula by December, 1981. What this implies is discussed at length in Chapter 5.

Coordinating with Other Programs

More than twenty programs within the Department of Education can involve bilingual education. For example, Title I of the ESEA is estimated to serve more than 200,000 LEP children, but the extent to which bilingual techniques are used for these children is unknown. Other related programs are ESAA, the Teacher Corps, and bilingual vocational education. Some programs have separable components that focus on bilingual education, e.g., the Lau General Assistance Centers funded under Title IV of the Civil Rights Act.[2]

Many coordination problems can be resolved only as matters of policy. The resolution of others can be facilitated by improved information on program resources and costs. For example, standard costs of proposed programs at the local level, by level, could help people operating related programs determine what would be reasonable costs for the bilingual education portions of their programs.

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[1] Section 703. (a) (1) (C).
[2] USOE, June 1979, p. 14.

In addition, knowledge of the cost of various components within a total bilingual education project would permit additional funding of some activities being conducted under other programs, such as ESL under Title I, by bilingual education funds; these costs should be differentiated for students with different combinations of needs, such as a disadvantaged bilingual child versus a nondisadvantaged bilingual child. This means that the area-specific costs at the local level, of actual or proposed programs, would need to be broken down by type of student and service, as illustrated in Figure 1.

Resolution of incompatibilities between state and federal bilingual education programs, such as differences in definitions of eligible students, is especially important, since perhaps a third of bilingual education funds are now contributed by the states. Funding information will help in apportioning funds between state and federal efforts. At the same time, the allocation of federal funds should support or at least not inhibit state efforts to improve the equalization of school financing, although, because school finance systems may be politically biased, federal funding procedures should not blindly follow state funding procedures.

Establishing Priorities for Information

The foregoing discussion shows that most of the cost information displayed in Figure 1 can be useful in some application. The discussion also suggests that both standard and area-specific costs at the local level, of either existing or proposed programs and preferably broken down by type of student and type of service, would be valuable for informing a wide variety of decisions. Unfortunately, however, area-specific costs are the most difficult to obtain, although it may be easier to construct them for proposed programs than to determine them for existing programs.

Chapter 3

OVERVIEW OF BILINGUAL EDUCATION

The preceding chapter established the primacy for cost analysis of a comprehensive and accurate description of the educational service provided. But, as with other educational services, what constitutes bilingual education programs varies widely. Much of this variation arises from differences in objectives and philosophies underlying state and federal statutes establishing bilingual education programs. Such variations strongly influence the structure and content of the programs, the composition of their target populations, and the numbers of students they serve. Educators' opinions also vary regarding the best combination of instructional content and sequence for attaining a given set of objectives for a given target population, and local conditions introduce additional differences. This chapter expands on these points.

PURPOSE

In general, bilingual education programs are intended to ensure equal educational opportunity to children whose linguistic and cultural backgrounds are not English by using their background languages[1] to provide academic education and by concurrently providing instruction in English language skills. This general statement deliberately skirts three issues whose resolution can significantly affect cost, namely, the precise identification of the target population, the objectives of the program with regard to the non-English language and culture, and the way in which pro-

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[1] These are sometimes referred to as "native" languages, although the child need not have acquired the language as a native.

gram objectives are translated into the content and sequencing of instruction.

STUDENTS TO BE SERVED

All state and federal legislation includes non-English speaking students in the target population for bilingual education programs. Criteria for inclusion of students who speak some English, however, have ranged from selecting those who are "culturally different" to selecting only those who perform below a certain percentile on a standardized English language test.[1] Students may also be considered eligible if they cannot "profit from instruction conducted solely in English,"[2] which implies that to determine eligibility, measures of achievement in the English curriculum would be combined with assessments of non-English linguistic or cultural characteristics. On the other hand, ability to benefit from instruction in the non-English language is never used as a criterion for eligibility.[3]

The specifications of the federal legislation are of particular interest in the present study. Title VII supports programs for Limited English Proficiency (LEP) children, defined to be those who, because they come from an environment in which the dominant language is not English, have sufficient difficulty speaking, reading, writing, or understanding English to deny them the opportunity to attain levels of academic achievement comparable to those of other students at their appropriate age and grade levels. LEP children may have difficulties with English ranging from inability to speak it, through having greater proficiency in another

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[1] Irizarry, 1978, p. 8
[2] loc. cit.
[3] Ibid., p. 10.

language than English, to partial competence in both English and another language. Thus, for Title VII eligibility the determining factor is the degree of English language proficiency, rather than whether the child has mastered another language better than English.

Title VII has been modified somewhat to fit special cases. For example, children in Puerto Rico who are limited in their ability to speak Spanish (the language of the schools) may receive bilingual instruction in Spanish. The Congress has also decreed that American Indian and Alaskan Native children need not speak their ancestral languages to qualify for bilingual education; rather, if they "come from environments where a language other than English has had a significant impact on their level of English language proficiency,"[1] they may qualify for bilingual education services.

The Children's English and Services Study of the NCES estimated that in 1978 2.4 million children aged 5-14, and an additional 1.2 million aged 15-18, had limited English language proficiency and could benefit from bilingual education. The estimates were derived from representative samples in three states and the remainder of the country; they were provided for Spanish speaking children and for children speaking "all other" languages. No differentiation was made by degree of proficiency in English.[2]

Since only about a tenth of the LEP children are now being served by bilingual programs, according to the USOE, it would be very useful to have criteria for deciding which additional students should be served. The law

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[1] Section 703. (a) (1) (C).

[2] Proficiency was measured by a test of age-specific speaking, listening, reading, and writing skills in English. (National Clearinghouse for Bilingual Education, June/July 1979, pp. 1 and 2.)

says that children who have been underserved by programs of bilingual education in the past and those most in need should be served first, but there is no consensus about which children best fit these criteria.

Because assessment of the degree of need depends in many instances on subjective judgment, estimates of the incidence of need may be influenced by other considerations such as perceptions of available funding or political exigencies. For example, in Colorado, nearly 16,000 students were identified as needing bilingual education in 1976 but only 8,000 in 1977.[1] The reduction came from a change in the definition of "linguistically different students;" this change coincided with an increase in the conservative representation in the state legislature. Politics also affects counts at the local level. For example, a district was described in which estimates by the bilingual department staff and counts obtained by school principals were in significant disagreement.

It was pointed out at the seminar that whatever definition or definitions are adopted, all federal research should use the same set so that results of that research will be comparable.

To prevent segregation on the basis of national origin, Title VII funds may also support instruction of non-LEP children. However, prevention of segregation must be the primary purpose of such use, and no more than 40 percent of the participants in a bilingual program may be non-LEP children. If non-LEP students are included in the program, they increase the number of students served and thereby may increase the cost of the program.

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[1] Robledo et al., pp. 19, 20.

This situation suggests problems of analysis arising from the use of the same set of resources (e.g., a bilingual teacher) to produce diverse products (e.g., improved proficiency in English for bilingual students and improved proficiency in the other language for monolingual students). In a strict sense, there is no way in such situations to determine exactly how much of each resource is allocated to each separate objective or program.[1]

BILINGUAL EDUCATION PROGRAMS

Program Objectives

As noted earlier, program objectives can affect program design and cost significantly. A program intended to maintain students' proficiency in another language advocates development and maintenance of skills in both English and the non-English language, whereas a program whose objective is to facilitate transition to instruction in English advocates a shift to instruction solely in English as soon as the student can perform successfully in English. The former type of program may cost more in total than the latter, even though the cost per student may be the same, because more students may qualify for the program to begin with and each will stay in the program longer.

The program objectives and changes in the target population over time are closely interrelated. Programs intended to maintain students' proficiency in their native language will need to serve a continuously growing group of students if there is a constant influx of LEP children into the

[1] There are ways to go about resolving these issues, but a full discussion of them is inappropriate for this report.

LEA. In addition, the LEA will need to make provisions for continuously increasing capacity to support the program independent of federal assistance. These points reinforce the importance of assessing future changes in the target population for planning the program.

Even after general objectives have been established for the program and the target population has been specified, the content and sequencing of the program must be established. Suppose, for example, that the program objective is to develop and maintain students' skills in a non-English language. For such a program there is presently no consensus among educators or linguists concerning which academic subjects should be taught in the other language, for how long they should be taught, how strongly instruction in English language skills should be stressed relative to instruction in the other language, or for what part of the program a certificated teacher is needed who is fully qualified for bilingual instruction. In fact, there is no consensus as to what comprises such qualification. Clearly the the ways in which such issues are resolved can strongly affect cost.

Programs Funded under Title VII

The federal legislation provides for transitional bilingual programs. Title VII identifies the following as being necessary elements of a bilingual education program:

- It is designed for LEP children in elementary or secondary school.
- There is instruction in and study of English.
- There is instruction in and study of the native language of the LEP children to the extent necessary to allow the child to achieve competence in English.
- Such instruction is given with appreciation for the cultural heritage of the LEP children and of other children in American society.

- o Such instruction is in all courses or subjects of study that will allow a child to progress effectively through the educational system.
- o In subjects such as art or physical education, LEP children should attend regular classes.
- o Children will be grouped by age and level of educational attainment, or provision will be made to meet individual needs in classes containing children with widely varying ages and levels of attainment.
- o Bilingual education should not result in segregation of children on the basis of national origin.

Although the list above provides some focus for defining bilingual education, most of the criteria for determining whether a particular program satisfies the intent of the law are clearly subjective. A major objective of the Part-C research agenda is to identify the resouces and procedures that will bring about desirable outcomes.

Variations in the proficiency with which bilingual students speak English should translate into differences in their needs for services, with possible differences in costs. For example, in surveying LEP children in the Houston Independent School District (HISD), Dr. Alston and his staff discovered that many students spoke English better than the non-English language that was spoken in their homes. He feels that it would be possible to meet most of their needs in the regular classroom, although they would require some supplementary services. This could be a relatively low-cost approach.

In addition, what the other language is, is important for designing and costing the program. For instance, there are many more materials and trained personnel associated with some languages than with others. In fact, for some American Indians one of the first steps must be development of an orthography for the language, since it may lack a system of writing.

Also, the Indochinese groups that are now coming into Houston, Dallas, and Southern California are not bringing with them the professional staffs that, say, the Cuban refugees brought with them in the early 1960s. Finally, the geographic distribution of students within districts may be important in determining how a bilingual program should be structured, e.g., whether there are enough bilingual students in a single school to warrant a program in that school or whether they should participate at a central location with students from other schools. The chosen structure will affect program cost. For example, students will have to be transported from their schools or homes to one or a few locations in a centralized program; alternatively, program administrators may have to travel to widely separated schools in a decentralized program.

Federal legislation requires recipients of federal funds to build their own capacity to provide bilingual education so that federal support can eventually be withdrawn. Capacity can be built both within the school district and at a more all-encompassing level. For example, universities can implement programs to train bilingual teachers, and libraries can acquire bilingual and linguistic materials.

An Alternative View

Dr. Cardenas described what he considers to be required elements of a basic bilingual education program for an LEP child. This description is reproduced here because it illustrates one interpretation of the law and demonstrates the importance of the program objectives in directing definition of the program and its subsequent cost. Dr. Cardenas's program would have the following features:

1. Basic skills instruction in the child's native language.[1] Basic skills are reading and language arts, mathematics, social studies, science, art, and music. The grade levels at which this instruction is given are not specified.

2. A structured program in English as a Second Language (ESL). Important features of such a program are a controlled vocabulary to prepare the student for subsequent instruction in English in all academic subjects and a systematic approach to the acquisition of English.

3. Provisions for transition from instruction in the native language to instruction in English.

4. Further development and maintenance of native language skills. Whether or not this component is included might depend in part on what the native language is.

5. Instruction in the history and culture associated with the native language.

Dr. Cardenas acknowledged that his scheme is controversial in several ways. For example, the scheme is based on the assumption that for some students the best way to facilitate transition to English is to improve acquisition of the home language, including reading skills, first. Dr. Cardenas noted, however, that if a child has equal dominance in English and another language, instruction in English would be advisable simply because there are more resources for it.

In Dr. Cardenas's view, many of the advantages of bilingual education are psychological, and the acceptance of the child's native language and culture makes a larger contribution to his learning than does the linguistic aspects of the instruction.

Finally, the program would continue to develop native language skills after the child was sufficiently proficient in English to receive instruction in English. Dr. Cardenas believes that children's skills in other

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[1] In the case of American Indian or Alaskan Native children, the native language may not be spoken in the home.

languages than English are valuable in their own right for the American culture.

FUNDING

Federal appropriations for bilingual education have grown from $7.5 million ten years ago to $158.6 milion in FY 1979.[1] The states have also increased their contributions to bilingual education dramatically since 1972, but it is difficult to ascertain how much money is available from state and local sources. In FY 1978, funds were available from several sources for bilingual program administration and delivery of services to students. Dr. Cardenas supplied figures on funding, by source.[2]

- Title VII--$135 million
- The Emergency School Aid Act (ESAA) bilingual--$8.6 million (These funds are used solely for services to students.)
- State allocations--$94 million
- Local allocations--$47 million

This totals about $285 million.

Other sources might provide additional funds. For example, $229 million of Title I funds are being spent for services to LEP children, though not necessarily on bilingual education; these might be available for some components of bilingual education such as ESL, or a bilingual aide. Additional ESAA funds might also be spent for bilingual education in certain circumstances, e.g., if a magnet school is developed to provide bilingual education. Use of ESAA funds for bilingual education would have to be coordinated by the OBE.

[1] USOE, p. 5.

[2] He cited the Education Commission of the States as the source for the figures on state and local funding.

Chapter 4

REVIEW OF STUDIES OF THE COST OF BILINGUAL AND OTHER EDUCATIONAL SERVICES

A major objective of the seminar was to establish what has been done to determine the cost of bilingual education and decide to what extent the results of past studies are adequate to inform policy decisions. Since even a brief review of the literature shows that past work on the cost of bilingual education has been limited, an additional objective was to obtain suggestions for augmenting this work from persons who have conducted more comprehensive studies of the cost of education services. This chapter briefly reviews seminar participants' descriptions of the available work on the cost of bilingual education, compensatory education, and education of the handicapped. These studies, as well as other research on the cost of education services,[1] provide the substantive background for many of the suggestions for further work that are described in Chapter 5.

COST OF EXISTING PROGRAMS IN NEW MEXICO

Dr. Garcia was among the first to study the cost of bilingual education. In 1975 he collected and analyzed the the cost of resources being used in existing bilingual education programs in New Mexico, with the objective of validating the state's cost-differential formula for the state legislature.

He designed two instruments for obtaining the data; one of these collected information about bilingual education programs and their associated costs, and the other collected the same information about regularly pro-

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[1] Carpenter-Huffman, et al., 1974.

vided education. Program quality was not considered. The New Mexico office of the chief of Public School Finance sent the survey instruments to all 88 LEAs in New Mexico.

Sixty-six percent of the districts in New Mexico had state-funded bilingual education programs. For his analysis, Dr. Garcia included only those districts that received state funds and excluded programs funded only by Title VII. If a district received funds from both the state and Title VII, he included resources funded by title VII to ensure that all costs were accounted for. All expenditures were included to calculate per-pupil costs; for instance, indirect expenditures were prorated on the basis of teachers or pupils.

From these data, Dr. Garcia estimated the extra expenditures for bilingual education. Resources included in add-on costs were teacher aides' salaries, specified direct program administration, supplies, and materials. He excluded teachers' salaries unless they had been hired specifically as bilingual teachers, separate from regularly provided education. He found, in fact, that the pupil-teacher ratios in bilingual programs, which he felt should have been less than those in regularly provided programs, were about the same. In those districts without teachers qualified for the bilingual program, he did not determine the cost of needed additional staff.

The resulting estimate of the add-on cost was $205 per pupil, 27 percent above the cost of regularly provided education. Dr. Garcia felt that although his results were applicable only to the districts sampled in New Mexico, his methodology is more widely applicable.

COST OF PROPOSED PROGRAMS IN COLORADO, UTAH, AND TEXAS

In 1975 and 1977 the Intercultural Development Research Association (IDRA) estimated what would be required to provide bilingual education in three states and two Texas LEAs, Crystal City and Brownsville. The LEA studies were conducted to validate the findings at the state level and to examine problems peculiar to local districts that were necessarily omitted from the state studies. Dr. Cardenas and Ms. Robledo described this work. Funding was limited to about $40,000 per study.

Rather than studying what was actually being purchased with bilingual education funds, as Dr. Garcia had done, IDRA created and priced what was considered to be a "minimally adequate" program. No account was taken in this process of students with varying levels of need. The task of defining the minimally adequate program was assigned to a panel of experts, chosen to be geographically representative of the state under study and of the agencies and programs operating in the state. For example, representatives at the LEA level were project directors, teachers, and persons from the community. Persons involved with bilingual education also came from institutions of higher education and from the state department of education.

The first task of the panels was to identify elements that were essential for the minimally adequate program, would affect cost, and were exclusively add-on elements. Special care was taken to exclude resources for general upgrading of education. In each of the three states, bilingual programs were assumed to be full-time programs of instruction. This is quite different from existing bilingual programs, in most of which students spend far less than half of their time.

Next, the panel determined the quantitites of resources needed to implement the program and computed their cost. The first, and perhaps most important, requirement was for additional classroom staff to reduce the ratio of pupils to adults and improve the linguistic interactions between staff and children. The pupil-adult ratios differed in each of the three states and also among grade levels, with lower ratios at the lower grades; consequently, per-pupil expenditures were different at different grade levels. Personnel costs were taken to be the state-wide average, but bilingual classroom teachers were not considered an additional cost because they were used in place of a monolingual teacher and would receive no additional salary. Funds were also included for staff development.

It is important to note that the IDRA approach assumed that teachers for bilingual programs would cost the same as teachers for regularly provided education. As discussed earlier, there is reason to question this assumption; in some instances, the salaries of bilingual teachers may be less, because they are often less experienced than teachers in regularly provided education. On the other hand, additional expenses may be incurred in recruiting or training qualified teachers.

Most of the panels also identified the need for additional personnel to administer and supervise the program; regular overhead costs were not included, however, nor were State Department of Education expenses for the operation of bilingual programs. In the states studied, these latter funds came from Title VII money or were allocated as part of the general administrative funds of the state. IDRA also did not include the cost of planning the program because state education accreditation agency laws require planning.

The other elements included were materials (books, workbooks, consumable supplies), equipment (despite the many possibilities here, an audio card reader[1] was the only equipment thought to be essential to a bilingual program and not needed for monolingual programs), testing, and library materials. It was assumed that materials already available for Spanish programs at the primary level were adequate, but there are unmet needs in the higher grades. The cost of meeting those needs was reflected in the cost figures.

Three areas were considered in the testing component. Initial screening for language assessment was thought not to be expensive enough to warrant its inclusion. The cost of assessment of language proficiency was included, however, as was the cost of tests of student academic achievement, administered in the other language. In Colorado, the panelists felt that affective testing should also be an integral part of the bilingual program.

For Colorado and Utah, the panels added funds for community involvement, such as training institutes for parents. In Utah, funds were included for staff recruitment because of the shortage of qualified staff. In both Colorado and Utah, the funds for staff development were higher than they had been in Texas. In Colorado, funds were also included for upward mobility of teacher aides.

Resource costs were converted into per-pupil costs and then into weights based on state funding to the LEAs. The rationale for this procedure was that the costs of bilingual education were to be added to the

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[1] An audio recorder, usually with a headset, and capable of duplicating, playback, and listen-record.

funds provided by the state for regularly provided education. The resulting ratio of the costs of bilingual education to the costs of regularly provided education ranged in Texas from 1.25 to 1.42; in Utah, from 1.17 to 1.25; and in Colorado, from 1.15 to 1.22.

COST OF PROPOSED PROGRAM IN HOUSTON

Dr. Alston described his cost analysis of bilingual education for the HISD. He began by looking at what resources are actually devoted to the program and then estimated what additional resources would be needed to provide a minimally adequate program, using the IDRA guidelines. The resulting dollar requirements were quite close to the IDRA figures, but there were many differences in detail. For example, additional money was needed for staff development because many of the teachers had inadequate knowledge of Spanish, and testing turned out to be more expensive than IDRA had estimated. In addition, because he was estimating the amount of funds needed locally, rather than at the state level, Dr. Alston omitted some resources that the state was responsible for.

COST OF COMPENSATORY EDUCATION

Ms. Haggart studied the cost of compensatory instructional programs as part of the Sustaining Effects Study of compensatory education for the USOE. She analysed the kinds, amounts, and costs of resources used to provide instruction in reading and mathematics to students in elementary grades. Students included in the analysis were participating in either Title I programs, other compensatory education programs (such as those funded by state agencies), or regularly provided education.

A representative sample of about 80,000 students was used. Four times during the first year of data collection, about 3,500 teachers reported the resources expended on each of the students in the sample. Exposure to instructional staff was measured for individual students; when all students in the class shared equally in the use of classroom resources, such as classroom equipment, resource use was measured at the classroom level. Resources were not distinguished on the basis of funding source, and only the resources required for instruction were included. (Administrative costs, for example, were not prorated to individual teachers or students.)

Standard prices for comparable resources were used to estimate the dollar cost of an individual student's reading and math program. As discussed in Chapter 2, use of such a metric reflects the measure of resource exposure, is sensitive to intraclassroom differences among services provided to students, and permits equitable comparisons of costs. The cost of the study, not including data collection, was about $300 thousand.

The results showed that Title I students received more resources than students either in other compensatory programs or in regular programs, even in the same school. The highest cost was $411 a year for teaching reading to Title I students; teaching personnel accounted for $336 of this figure. Students participating in compensatory education other than Title I in the same schools received $350 worth of resources for reading instruction; in non-Title I schools, the figure was $384. As for Title I students, teaching personnel accounted for the bulk of the cost. Students in regularly provided programs received between $242 and $257 worth of reading instruction. The same general pattern pertained for math, although math program costs were about $100 to $170 less than reading program costs.

Ms. Haggart concluded that students in compensatory education programs, including Title I, receive substantially higher resource levels (51 to 65 percent higher) than do students in regularly provided programs. In fact, the compensatory education programs with the lowest average cost exceed the highest cost for any of the regular programs. Thus, teachers allocate resources differently in response to differing student needs.

These results were quite different from the cost per student obtained by dividing the Title I money for the district by the number of students identified as participating in Title I--from $30 to $1600 per student. Thus, the standard cost of resources provided to students can be very different from the number obtained by dividing the total expenditures by the number of students. Ms. Haggart pointed out that use of a cost-per-student derived in this way assumes that (1) the money allocated is all spent at the student level and (2) all students share equally in the money. Both assumptions are incorrect.

COST OF EDUCATION FOR THE HANDICAPPED

Dr. Kakalik described a three-year study of the costs of special education being conducted for the Bureau of Education for the Handicapped. The objective of this study is to provide information on the costs of alternative types of education services for children of different ages with various physical and mental handicaps.

Incidence data on handicapped children are poor, with estimates ranging from 7 to 20 percent of the school population. As is the case with bilingual education, often subjective value judgments must be made as to when a child is sufficiently emotionally disturbed, for example, to require special services. For his study, Dr. Kakalik has grouped students by age; handicap and severity; and the type of programming arrangement provided,

e.g., special day schools, various types of mainstream, only ancillary services, or only indirect services.

To obtain the needed empirical data, Rand cost analysts visited programs in a representative sample of 72 LEAs[1] in 14 states, stratified by geographic region. Data were collected to provide detailed knowledge of the program, such as demographic characteristics of the LEA, size and newness of the program, types of handicaps provided for, pupil age, and turnover of pupils in the program. Resources on which data were collected include teacher time, aide time, pupil/staff ratios, time required to develop individualized education plans, assessment of student handicaps, types of equipment, related services like physical therapy, and many other cost factors.

The effects on cost of program characteristics are being analyzed as is the sensitivity of cost to variations in program objectives. The cost of special education will be considered both in relation to the cost of regularly provided education and in terms of the actual resources devoted to the handicapped child. Both area-specific and standard costs are being used to provide different bases for decisions. This study costs about $700,000 for work in 14 states.

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[1] Includes some regional agencies.

SUMMARY

The cost data constructed by past studies of bilingual education are too limited to fill current needs. For example, most of the data relate to the cost of only a single type of program ("minimally adequate as defined by a panel of experts") in a restricted geographic area (four contiguous state in the Southwest). Data on existing programs are available only for New Mexico and Houston and are not related to program content or adequacy. Almost all of the work has been done on the cost of bilingual education for Spanish-speaking children; data on the American Indian students included in Dr. Garcia's study cannot be separately identified. Finally, past work provides no guidance on how to go beyond the specific programs described. In effect, as was shown in the preceding chapter, nearly half a billion dollars is now beng spent for "bilingual education" without sufficiently precise knowledge of what those dollars are buying to guide decisions about what they should be buying.

Previous studies of the cost of bilingual education, the studies described by Ms. Haggart and Dr. Kakalik, along with other research on the cost of education services, provide a basis for designing needed research on the cost of bilingual education. What should be the content of that research is established in the next chapter.

Chapter 5

RESEARCH AGENDA

INTRODUCTION

This chapter summarizes the seminar findings on how to obtain comprehensive, empirically-based cost information for a variety of decision-making activities at the federal, state, and local levels. Seminar attendees felt that three general types of research activities should be undertaken to meet the federal needs. The first would establish reasonable costs of different kinds of bilingual education services for children with different needs. This chapter focuses primarily on this activity.

Second, a number of uses for cost information described in Chapter 2 require the determination of aggregate expenditures, nationwide, both current and future. Although the cost information obtained from the research described here is requisite to such calculations, additional information is needed on the incidence of LEP children, by type of need, throughout the nation and in the future. Obtaining data on incidence is not the objective of the research described here.

Finally, information on the cost of different services and projected total needs should be combined to test the desirability of funding programs on the basis of a formula and to help determine desirable meshing between state and federal funding. Again, although this activity will use the results of the first activity, as well as the second, it is a separate research effort; it is dealt with toward the end of the chapter.

In designing the research plan, attendees recognized the constraints of time and resources implied by the Part-C research program. Time constraints are also imposed by the need for cost information for the 1982 hearings on authorization for Title VII, as well as by the due date for the

results of the formula feasibility study, December, 1981. In addition, seminar attendees also considered the need for short studies to provide quick answers to currently pressing questions, such as review of grant applications and monitoring site operations.

Although the Part-C research agenda indicates that $50,000 is to be spent for the Cost Model Study, with no additional funding in succeeding years, this agenda is likely to change after the transition to the Department of Education. In addition, other federal agencies, such as NIE and NCES, are interested in the general subject of the cost of education services and might be willing to fund small studies or to supplement Title VII funds for larger studies. These possibilities encouraged the participants to consider research that would consume more resources than those indicated in the Part-C plan.

The objectives of providing useful cost information within the prevailing resource and time constraints dictate a phased approach, illustrated in Figure 2.

Phase 1

The first phase has two components to be carried out by a single contractor. For one, the contractor will estimate the cost of hypothetical bilingual education programs judged to be adequate by panels of experts, using procedures similar but significantly different than those developed by IDRA. For brevity, this is referred to as the Judgmental Cost Study. This study will help meet immediate needs for cost information at the federal level. It will require 12 months to complete and cost $150,000 in FY 1981 funds.

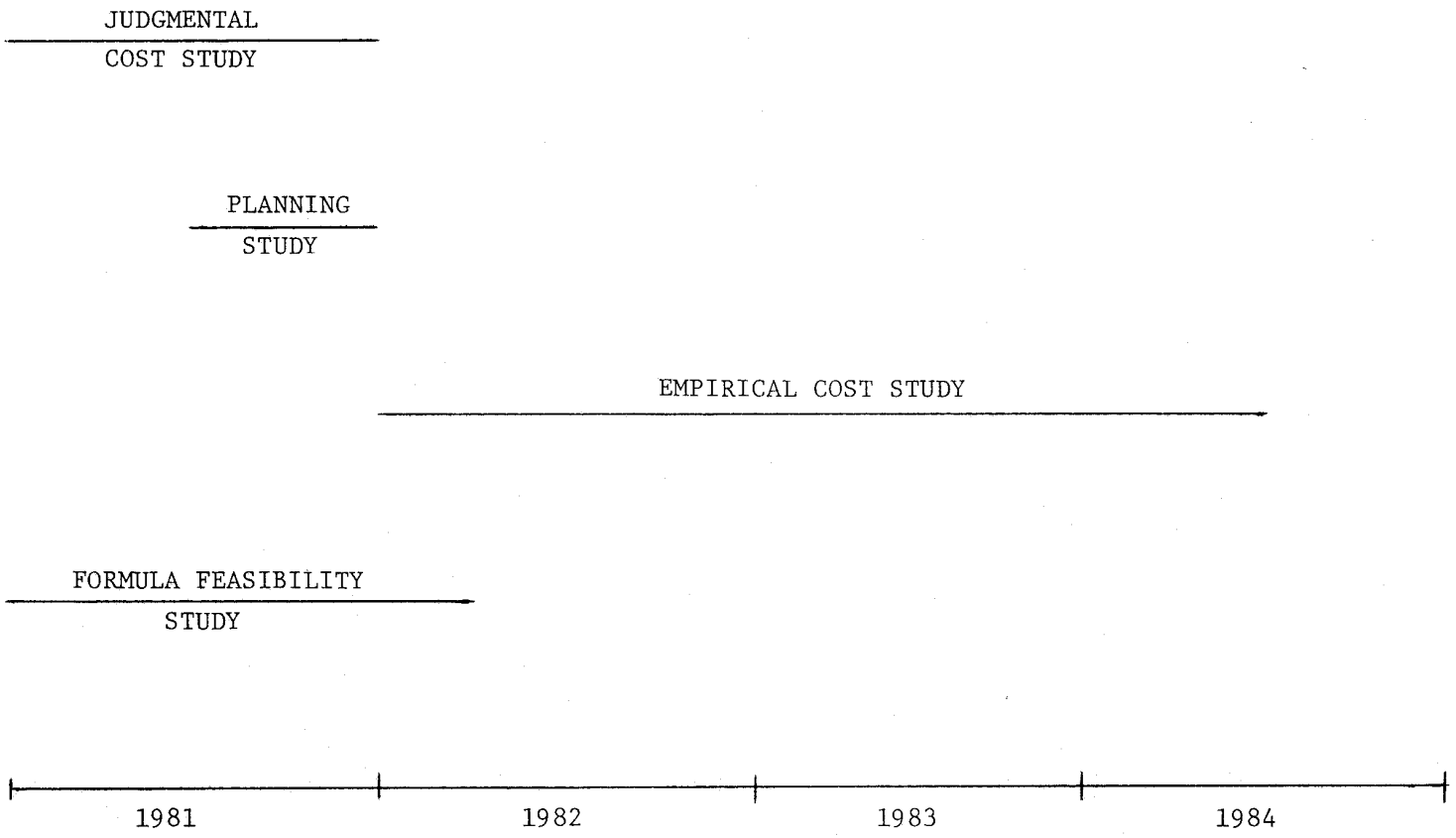

Fig. 2--Schedule of Proposed Research

Concurrently, the contractor will plan the second phase of the work, namely to derive a nationally representative set of empirical cost data and cost structures from data describing existing bilingual education programs. For brevity, the planning activity is referred to as the Planning Study. This study will take 6 months and cost $75,000.

Phase 2

The second phase of the work is referred to as the Empirical Cost Study. It will take 2 to 3 years to complete and cost an estimated $1,000,000.

JUDGMENTAL COST STUDY

Each of these studies is described here briefly. The Judgmental Cost Study will significantly enhance the IDRA approach and will include a few additional states, e.g., New Jersey or New York, Florida, Michigan or Wisconsin, and perhaps California. The results for Texas (and perhaps for New Mexico, Utah, and Colorado) will be updated, and a sample of several other states will be drawn, stratified by geographic region, concentrations of the target population, types of ethnic groups, and costs.[1] Use of different states will help ensure an adequate representation of the types of students, arrangements for delivery of services, and costs of resources needed to build the cost structure. Using states rather than LEAs or programs will also minimize the cost of sampling and avoid biasing the results with idiosyncrasies of particular LEAs or programs.

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[1] Separate studies would be needed for regions with very different populations, such as Puerto Rico and Alaska; these are not included in the research plan because of resource constraints.

The contractor will choose panels of experts from the selected states to define alternative programs in bilingual education in their states. One way to generate alternatives is to hypothesize minimally adequate programs for different categories of LEP children, such as non-English speaking, English speaking but not dominant in English, and dominant but not proficient in English. The results of these activities will be a cost structure for bilingual education programs adjudged adequate to meet the needs of the children they would serve. The cost structure should be kept simple enough to allow computations of cost to be made in a short time and to facilitate understanding of the results by lay persons.

The panels and consultants will next estimate the total cost of each program. (The add-on cost will be calculated as shown below.) Personnel salary levels will be derived from data available from the states; if intrastate variations are large, perhaps weighted averages should be used.

The total cost of regularly provided education, defined and priced in a way similar to the bilingual programs, will also be estimated. (The regularly provided education so defined will not include children with special needs, such as the handicapped, to avoid problems of multiple eligibility.) The estimated additional cost of a given type of bilingual program will then be calculated as the difference between the cost of that program and the cost of regularly provided education. Such a calculation will also take account, to some extent, of interactions between regularly provided and bilingual programs, such as reduction of class sizes in regularly provided education caused by pull-out of bilingual students or participation of non-LEP students in bilingual programs.

The results will be critiqued by experts in the remaining states. Persons involved in the critique will come from state education agencies, state associations for bilingual education, a few major school districts, the technical assistance centers funded by Title VII, regional service centers (funded either by the states or Title VII), and community groups. These agencies will assess the adequacy of the programs defined by the state panels and determine whether these programs reflect conditions in their states such as salary levels, appropriateness of program elements, and inclusion of important considerations.

Coordination with the Instructional Features Study

The cost structure resulting from the Judgmental Cost Study will help guide the Instructional Features study, ensuring that whoever conducts the Instructional Features study will describe features that will have effects on resources and costs in terms that permit determination of costs. Constructing a cost structure for the Instructional Features study may require little more from the Judgmental Cost Study contractor than consulting services, because resources at primarily the classroom level will be involved and local variabilities in resource availabilities and costs can be ignored. Clearly a better understanding of the relation of cost to quality is essential for planning, and the coordination of these two studies may help provide such an understanding.

Limitations of the Judgmental Cost Study

The seminar attendees were adamant that research on the cost of bilingual education must not end with this study. Although the study results will be useful, they will be based on proposed programs, not on those already in place, nor will it be possible to know how well they represent national needs. Also, resources for the study will be insufficient for developing tools for applying the research results.

The attendees noted that as soon as any cost figures are supplied, they will be used, whether they are appropriate or not. For this reason, several participants thought that it might be desirable for the Judgmental Cost Study not to include the national critique, which might give a misleading sense of empirical validity to the study findings. In their opinion, there is a logical possibility that the Judgmental Cost Study may produce biased results. For example, the panels may design either overly elaborate programs to justify increased funding or programs that omit important resources to demonstrate the economy of bilingual education.

PLANNING STUDY

The objective of this work is to plan the Empirical Cost Study proposed for Phase 2. The plan will include a statement of study objectives, e.g., to supply cost information and cost structures for current and probable future bilingual education programs.

Methodologies to be used in attaining these objectives will be described. These methodologies will include procedures for determining the population of usable programs for empirical analysis, methods of sample selection, and methods for identifying probable future programs.

One way to determine what should be considered in selecting programs is to consult with the technical assistance centers, the Research Center, the Clearinghouse, and organizations at the state and local levels concerned with bilingual education. Another is to choose programs for empirical analysis that are similar to the basic and alternative programs defined by the panels of experts in the Judgmental Cost Study. In fact, during that study the panels may establish criteria for identifying adequate programs. Augmentation of existing programs may be considered. For example, where paraprofessionals have been substituted for qualified bilingual education teachers, the cost to obtain an adequate supply of qualified teachers may be examined.

Alternatively, it may be desirable to select a sample of programs that are representative of existing programs, adequate or not. This would provide data on programs satisfying various criteria of adequacy as well as on the realities of existing programs.

The Planning Study will identify study products and methods for dissemination of study results; products might include procedures for obtaining quick answers to "what if" questions similar to the general model described by Hartman.[1]

Qualifications of research personnel, research schedule, and cost for the Empirical Cost Study will be determined during the Planning Study. The contractor will seek advice on the technical approach from qualified persons without vested interests in bilingual education. The planning study will describe provisions for review by such persons of the Empirical Cost Study methodology and results.

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[1] Hartman, 1979.

EMPIRICAL COST STUDY

The objective of this study is to derive cost data and structures for bilingual education at the local level from a combination of empirical data on existing programs and, possibly, desired additions to existing programs. The Empirical Cost Study will complement and supplement the subjective results of the Judgmental Cost Study to a nationally representative sample of populations, programs, and states. The LEA will be the level of analysis. The study will also produce a variety of aids to the practitioner in the field as well as to decisionmakers at the state and federal levels.

The seminar attendees estimated that at least a year would be needed to make the LEA contacts, set up the study activity, and obtain Forms Clearance. The estimated cost of this study ($1 million) was derived by comparison with Dr. Kakalik's study of the cost of special education, another Bureau of Education for the Handicapped survey of special education services (three years for $1.1 million), and the System Development Corporation study of the cost of ESAA ($3 to 4 million, including evaluation of effectiveness).

FORMULA FEASIBILITY STUDY

By December 1981, long before the Empirical Cost Study is completed, the Coordinating Committee plans to report to the Congress on the feasibility of converting Title VII funding to a formula basis. The seminar attendees felt that resolution of many of the issues surrounding the feasibility of funding by formula is not contingent on actual costs of bilingual education. Hence, the Formula Feasibility study can and should begin now to assess alternative strategies for constructing a formula.

Questions to be answered include:

- o What are the arguments for and against use of formula-based funding rather than the current system?
- o What are the arguments for and against alternative kinds of formulas?
- o Should the formula be pegged to average education expenditures in each state, as is done for Title I? Or should states be reimbursed differently for different language groups and different degrees of proficiency?
- o Should the formula take account of regional differences in teacher salaries ? (Other federal programs do not currently do so.) If Alaska pays several times what Alabama pays, should they get several times as much funding support?
- o How can the formula take account of multiple eligibilities? It probably should not simply sum the add-on factors for each program for which a child is eligible, as is done in at least one state.
- o How should questions of meshing between state and federal funding be treated?

The basis of any funding formula takes one of three general forms--the number of students, the set of resources delivered (usually classroom staff), or the total dollars to be expended. Funds are then distributed based on one variable, with controls for the other two variables; how well a formula works in practice depends largely on the details of how it is implemented.

The Formula Feasibility study should examine the pros and cons of different control mechanisms, including the disincentives in each and the relative costs of implementation. Some possibilities include matching versus block grants to districts or states, strings to be attached for allocating new monies to current programs, and possibilities for omitting some funding (e.g., pre-service training grants to universities) from the formula.

Some of the pros and cons of different approaches were brought up during the seminar. For example, allocating funds as a percentage of local expenditures may accentuate existing disparities, usually reflecting disparities in district wealth, in funding between districts. The political implications of different levels of funding must also be considered. For example, if the Puerto Ricans, because they live in New York, receive twice as much as the Mexican-Americans living in New Mexico, the latter will feel discriminated against. The same sorts of differences might arise between programs for Hispanics and Cambodian programs, for which few qualified teachers and other service delivery personnel will be available.

The results of the Judgmental Cost Study will supply values for the parameters in the formulas and help test alternative formulations that early analyses indicate might ensure that needs are met without providing perverse incentives to local planners.

Since the Formula Feasibility results must be available by December, 1981, for a cost of $100,000, the study contractor can use only data now readily accessible. Therefore, the research may largely consist of conceptual analysis as well as the study of the results of prior research and of records in the Office of Education on Title I, ESAA, and other federal programs.

ALTERNATIVE RESEARCH PROPOSALS

Several other research efforts were discussed but not fully developed because some participants felt they were less desirable than those described above. Because these alternative approaches to obtaining cost information may have some advantages over the proposed program, they are included here.

One suggestion was to sample budgets from districts that deliver different kinds of services in different parts of the country and to analyze the backup to those budgets, that is, the descriptions of the programs they represent. The budgetary data might be manipulated to provide the base needed for the bilingual education cost structure. For example, Texas has a budgeting system that includes the option for describing program components; this might be adequate for displaying the cost of components of bilingual education. This activity would provide a menu of what is meant by bilingual education in terms of resources and costs and how these relate to the political realities represented by the budgets. The majority of the participants rejected this suggestion because the research might become mired in irrelevant budgetary details and because it would be difficult to ensure that the budgets analysed represented well-developed bilingual programs.

Another suggestion was to provide OBEMLA with guidelines for evaluating Title VII grant applications by listing the program components that should, and perhaps should not, be in an application and providing methods for computing standard costs for common components to facilitate comparisons among program proposals. This suggestion was rejected because the attendees felt that it would not address the major needs, and the OBEMLA could obtain similar services by hiring management consultants. Several participants, however, believed that such assistance could be useful to OBEMLA in the short run, regardless of how OBEMLA chooses to obtain it.

It was also suggested that case studies could shed light on what bilingual education programs are and cost. Perhaps six cases could be examined, stratified by costs (primarily teachers' salaries); most would be programs for Spanish speaking students, but perhaps a program for some

other language would be included. Data would be collected on resources and costs in the chosen LEAs for bilingual education and for regularly provided education to permit calculation of the added cost of bilingual education. Such a study would not pretend to give statistically representative results, thereby minimizing the chances that the results would be misused. The Rand participants estimate that the cost of the study might be on the order of $150,000. This suggestion was rejected by the seminar participants as a whole because it would have to be limited to very few cases to stay within funding comparable to that required by the Judgmental Cost Study. Still another alternative might be to combine the case study approach and the Judgmental Cost Study approach into one study.

Appendix A

SEMINAR PARTICIPANTS

Dr. Herbert L. Alston, Research Department, Houston Independent School District

Dr. José A. Cardenas, Director, Intercultural Development Research Association

Ms. Polly Carpenter-Huffman, Senior Policy Analyst, Rand Corporation

Dr. David Dubois, National Center for Educational Statistics (Observer)

Dr. Ruben W. Espinosa, Director, California School Finance Project

Dr. Joseph O. Garcia, Associate Director, Multicultural Education Center, University of New Mexico

Dr. Josué M. Gonzalez, Director, Office of Bilingual Education, Department of Health, Education, and Welfare

Dr. Aaron Gurwitz, Associate Economist, Rand Corporation

Ms. Sue A. Haggart, Haggart and Associates

Dr. Ron Hall, Policy Analyst, Office of the Assistant Secretary for Education, Policy Development

Dr. Paul T. Hill, Director, Education and Human Resources Research Program, Rand Corporation

Dr. Gerald Kahn, National Center for Educational Statistics (Observer)

Dr. James S. Kakalik, Senior Policy Analyst, Rand Corporation

Mr. David Leeman, Office of Civil Rights (Observer)

Ms. Maria del Refugio Robledo, Research Director, Intercultural Development Research Association

Appendix B
AGENDA

Monday, February 18, 1980

Subject	Discussant
Introduction to Rand Policy Research Program	Hill
Issues to be Addressed by Seminar	Carpenter-Huffman
ASE Research Program in Bilingual Education	Hall
OBE Needs for Cost Information	Gonzalez
Definition of Minimally Adequate Bilingual Education for Three States; Funding Needs	Cardenas
Applications of Cost Methodology in Houston Independent School District	Alston
Cost Analysis of Bilingual Education in New Mexico	Garcia
IDRA Techniques of Cost Analysis; Relation to Policy	Robledo
Political Effects on the Relationship of Funding to Needs for Resources	Espinosa
Linking Resources to Educational Services	Haggart
Parallels between Cost Analysis of Education for the Handicapped and Bilingual Education	Kakalik
Needs for Cost Information at the Federal Level	Gonzalez Hall

Tuesday, February 19, 1980 (All Participants but Dr. Gonzalez and Dr. Hall)

Workshop I: Identification of Major Research Questions

Workshop II: Specification of Research Strategies

Workshop III: Funding Formula--Policy Issues and Research Questions

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